AMENDMENTS TO THE CLAIMS

1-8. (Canceled).

9. (Currently amended) ~~A sensing device comprising: a substrate;~~ The image pixel array of claim 11, further comprising:

a ~~sensing region~~ third photosensor at or beneath a surface of the substrate that receives incident light, the ~~sensing region~~ third photosensor absorbing a majority of incident light at wavelengths shorter than ~~a bounding~~ the first wavelength and ~~transmitting~~ passing a majority of incident light at wavelengths longer than the ~~bounding~~ first wavelength~~; and~~

~~readout circuitry at the surface of the substrate that provides readout signals indicating a quantity of incident light absorbed in the sensing region~~.

10. (Currently amended) The sensing device of claim 9, wherein the ~~bounding~~ first wavelength is approximately between blue and green visible light.

11. (Currently amended) An image pixel array in an imaging device, comprising:

~~at least one~~ a first photosensor at or beneath a surface of a substrate; and

~~a filter comprising~~ a first filter having one or more layers of polysilicon or epitaxial silicon ~~layer~~ over ~~said~~ the first photosensor and substrate, the ~~filter~~ first filter having a first thickness and absorbing a majority of light at wavelengths shorter than a first wavelength and ~~transmitting~~ passing a majority of light at wavelengths longer than the first wavelength;

the first photosensor receiving light ~~transmitted~~ passed by the ~~filter~~ first filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and ~~transmitting~~ passing a majority of light received at wavelengths longer than the second wavelength;

a second photosensor at or beneath the surface of the substrate and laterally adjacent to the first photosensor; and

a second filter having one or more layers of polysilicon or epitaxial silicon over the second photosensor and substrate, the second filter having a second thickness and absorbing a majority of light at wavelengths shorter than the second wavelength and passing a majority of light at wavelengths longer than the second wavelength;

the second photosensor receiving light passed by the second filter, absorbing a majority of light received at wavelengths shorter than a third wavelength and longer than the second wavelength, and passing a majority of light received at wavelengths longer than the third wavelength.

12. (Currently amended) The image pixel array of claim 11, wherein ~~said at least one photosensor is~~ the first and second photosensors are formed beneath an upper surface of ~~said~~ the substrate.

13. (Currently amended) The image pixel array of claim 12, wherein ~~said photosensor is~~ the first and second photosensors are selected from the group consisting of a photo diode, photogate, photoconductor, or other image to charge converting device for initial accumulation of photo-generated charge.

14. (Currently amended) The image pixel array of claim 11, wherein ~~said~~ the one or more polysilicon or epitaxial silicon ~~layer is~~ layers of the first filter are formed to attenuate only light having a wavelength of blue light.

15. (Currently amended) The image pixel array of claim 11, wherein ~~said~~ the one or more polysilicon or epitaxial silicon ~~layer is~~ layers of the second filter are formed to attenuate light having a wavelength of blue light and light having a wavelength of green light.

16. (Currently amended) The image pixel array of claim 11, wherein a layer of ~~tetraethyl~~ tetraethyl orthosilicate is formed over ~~said~~ the one or more polysilicon or epitaxial silicon ~~layer~~ layers of the first filter.

17. (Canceled).

18. (Currently amended) The image pixel array of claim 11, wherein an insulating layer is formed over ~~said~~ the one or more polysilicon or epitaxial silicon ~~layer~~ layers of the first filter.

19. (Currently amended) The image pixel array of claim 18, wherein electrical contacts are formed in ~~said~~ the insulating layer.

20. (Currently amended) The image pixel array of claim 11, wherein ~~said~~ the pixel array is formed of about 1.3 megapixels to about 4 megapixels.

21. (Currently amended) The image pixel array of claim 11, wherein the ~~filter~~ first or second filters blocks non-normally incident light.

22. (Canceled).

23. (Withdrawn) An image pixel array in an imaging device, comprising:

a plurality of photosensors at a surface of a substrate, said plurality comprising a first set, second set and third set of photosensors;

a first epitaxial silicon filter over each of said first set of photosensors, said first epitaxial silicon filter comprising part of a first patterned layer of epitaxial silicon over the photosensor;

a second epitaxial silicon filter over each of said second set of photosensors, said second epitaxial silicon filter comprising part of the first patterned layer over the photosensor and part of a second patterned layer of epitaxial silicon over said first patterned layer; and

readout circuitry at the substrate's surface that provides readout signals indicating a quantity of incident light absorbed in the photosensors;

each first epitaxial silicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and transmitting a majority of light at wavelengths longer than the first wavelength;

each of the first set of photosensors receiving light transmitted by the first epitaxial silicon filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and

longer than the first wavelength, and transmitting a majority of light received at wavelengths longer than the second wavelength;

each second epitaxial silicon filter absorbing a majority of light at wavelengths shorter than a third wavelength approximately equal to the second wavelength and transmitting a majority of light at wavelengths longer than the third wavelength;

each of the second set of photosensors receiving light transmitted by the second epitaxial silicon filter, absorbing a majority of light received at wavelengths shorter than a fourth wavelength and longer than the third wavelength, and transmitting a majority of light received at wavelengths longer than the fourth wavelength; and

each of the third set of photosensors absorbing a majority of light received at wavelengths shorter than a fifth wavelength approximately equal to the first wavelength, and transmitting a majority of light received at wavelengths longer than the fifth wavelength.

24. (Canceled)

25. (Withdrawn) An imager system, comprising:

a processor; and

an imaging device coupled to said processor, said imaging device comprising:

a semiconductor substrate; and

a pixel array, said pixel array comprising:

at least one photosensor at or beneath a surface of a substrate; and

an epitaxial silicon filter over said photosensor, the epitaxial silicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and transmitting a majority of light at wavelengths longer than the first wavelength;

the photosensor receiving light transmitted by the epitaxial silicon filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and transmitting a majority of light received at wavelengths longer than the second wavelength.

26-27. (Canceled)

28. (Withdrawn) An image pixel array in an imaging device, comprising:

a plurality of photosensors at a surface of a substrate, said plurality comprising a first set, second set and third set of photosensors;

a first crystal silicon filter over each of said first set of photosensors, said first crystal silicon filter comprising part of a first patterned layer of epitaxial crystal silicon over the photosensor;

a second crystal silicon filter over each of said second set of photosensors, said second crystal silicon filter comprising part of the first patterned layer over the photosensor and part of a second patterned layer of epitaxial crystal silicon over said first patterned layer; and

readout circuitry at the substrate's surface that provides readout signals indicating a quantity of incident light absorbed in the photosensors;

each first crystal silicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and transmitting a majority of light at wavelengths longer than the first wavelength;

each of the first set of photosensors receiving light transmitted by the first crystal silicon filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and transmitting a majority of light received at wavelengths longer than the second wavelength;

each second crystal silicon filter absorbing a majority of light at wavelengths shorter than a third wavelength approximately equal to the second wavelength and transmitting a majority of light at wavelengths longer than the third wavelength;

each of the second set of photosensors receiving light transmitted by the second crystal silicon filter, absorbing a majority of light received at wavelengths shorter than a fourth wavelength and longer than the third wavelength, and transmitting a majority of light received at wavelengths longer than the fourth wavelength; and

each of the third set of photosensors absorbing a majority of light received at wavelengths shorter than a fifth wavelength approximately equal to the first wavelength, and transmitting a majority of light received at wavelengths longer than the fifth wavelength.

29. (Canceled)

30. (Currently amended) An imager integrated circuit, comprising:

a substrate;

a pixel array at the substrate's surface, the pixel array comprising:

first and second sets of pixels, each including a ~~photosensor~~ photodiode comprising a doped region of a first conductivity type at a same depth below the substrate's surface;

a first polysilicon filter having a first thickness over each of ~~said first set of photosensors~~ the photodiodes in the first set of pixels, ~~said~~ the first polysilicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and ~~transmitting~~ passing a majority of light at wavelengths longer than the first wavelength;

a second polysilicon filter having a second thickness different than the first thickness over each of said ~~second set of photosensors~~ photodiodes in the second set of pixels, ~~said~~ the second polysilicon filter absorbing a majority of light at wavelengths shorter than a second wavelength longer than the first wavelength and ~~transmitting~~ passing a majority of light at wavelengths longer than the second wavelength; and

readout circuitry ~~at the substrate's surface~~ that provides readout signals indicating a quantity of incident light absorbed in each of the ~~photosensors~~ photodiodes.

31. (Currently amended) An imager integrated circuit, comprising:

a substrate;

a pixel array at the substrate's surface, the pixel array comprising:

first and second sets of pixels, each including a ~~photosensor~~ photodiode comprising a doped region of a first conductivity type at a same depth below the substrate's surface;

a first crystal silicon filter having a first thickness over each of ~~said first set of photosensors~~ the photodiodes in the first set of pixels, ~~said~~ the first crystal silicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and ~~transmitting~~ passing a majority of light at wavelengths longer than the first wavelength;

a second crystal silicon filter having a second thickness different than the first thickness over each of said ~~second set of photosensors~~ photodiodes in the second set of pixels, ~~said~~ the second crystal silicon filter absorbing a majority of light at wavelengths shorter than a second wavelength longer than the first wavelength and ~~transmitting~~ passing a majority of light at wavelengths longer than the second wavelength; and

readout circuitry ~~at the substrate's surface~~ that provides readout signals indicating a quantity of incident light absorbed in each of the ~~photosensors~~ photodiodes.

32. (Withdrawn) A method of forming a sensing device that senses light in a wavelength range, comprising:

forming a photosensor at or beneath a surface of a substrate; and

providing a filter formed of polysilicon or epitaxial silicon over said photosensor, the filter absorbing a majority of light at wavelengths shorter than a first wavelength and transmitting a majority of light at wavelengths longer than the first wavelength;

the photosensor receiving light transmitted by the filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and transmitting a majority of light received at wavelengths longer than the second wavelength.

33. (Withdrawn) The method of claim 32, wherein said photosensor is formed beneath the surface of said substrate.

34. (Withdrawn) The method of claim 32, wherein said photosensor is selected from the group consisting of a photodiode, photogate, photoconductor, or other image to charge converting device.

35. (Withdrawn) The method of claim 32, wherein the first wavelength is approximately between blue and green visible light.

36. (Withdrawn) The method of claim 32, wherein the first wavelength is approximately between green and red visible light.

37. (Withdrawn) The method of claim 32, wherein the second wavelength is approximately between green and red visible light.

38. (Withdrawn) The method of claim 32, wherein the second wavelength is longer than red visible light.

39. (Withdrawn) The method of claim 32, further comprising forming a layer of insulating material over said filter.

40. (Withdrawn) The method of claim 32, wherein the act of forming the filter comprises:

depositing a first layer of polysilicon or epitaxial silicon over the photosensor; and

patterning the first layer of polysilicon or epitaxial silicon.

41. (Withdrawn) The method of claim 32, wherein the act of forming the filter comprises:

forming a first patterned layer of polysilicon or epitaxial silicon that includes a first portion over the photosensor; and

forming a second patterned layer of polysilicon or epitaxial silicon that includes a second portion on the first portion.

42. (Withdrawn) The method of claim 32, wherein said filter is a polysilicon filter.

43. (Withdrawn) The method of claim 42, wherein said polysilicon filter is formed at a thickness of about 193 nm.

44. (Withdrawn) The method of claim 42, wherein said polysilicon filter is formed at a thickness of about 1034 nm.

45. (Withdrawn) The method of claim 32, wherein said filter is an epitaxial silicon filter.

46. (Withdrawn) The method of claim 45, wherein said epitaxial silicon filter is formed at a thickness of about 300 nm.

47. (Withdrawn) The method of claim 45, wherein said epitaxial silicon filter is formed at a thickness of about 1500 nm.

48. (Withdrawn) The method of claim 32, wherein said filter is formed to a thickness suitable for blocking non-normally incident light.

49. (Withdrawn) A method of sensing light in a range between lower and upper wavelengths comprising:

passing light through a filter structure that absorbs a majority of light at wavelengths shorter than the lower wavelength and transmits a majority of light at wavelengths longer than the lower wavelength; and

sensing light transmitted by the filter structure in a sensing structure, the sensing structure including a sensing region that absorbs a majority of light at wavelengths shorter than the upper wavelength, wherein the sensing structure provides an output signal in response to light absorbed in the sensing region.

50. (Withdrawn) The method of claim 49, wherein the sensing structure is a substrate, the sensing region being at a surface of the substrate, the filter structure being photolithographically patterned on the substrate's surface.

51. (Withdrawn) The method of claim 49, wherein the sensing structure provides an output signal in response to light absorbed in the sensing region.

52. (Withdrawn) The method of claim 49, wherein the filter structure is a layered polysilicon structure with at least one layer.

53. (Withdrawn) The method of claim 49, wherein the filter structure is a layered epitaxial silicon structure with at least one layer.

54. (Withdrawn) A method of forming an array of sensing devices each of which senses light, comprising:

forming a plurality of photosensors and polysilicon filter elements at a surface of a substrate, said plurality comprising a first set and second set of photosensors, each of said first and second sets of photosensors having respective polysilicon filter elements;

the act of forming the photosensors and polysilicon filters comprising:

forming a first patterned layer of polysilicon, the first patterned layer including a respective part over each of said first set and said second set of photosensors; and

forming a second patterned layer of polysilicon, the second patterned layer including a respective part over the part of the first patterned layer over each of said second set of said photosensors;

the part of the first patterned polysilicon layer over each of the first set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the first wavelength;

the parts of the first and second patterned polysilicon layers over each of the second set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a second wavelength longer than the first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the second wavelength.

55. (Withdrawn) A method of forming an array of sensing devices each of which senses light, comprising:

forming a plurality of photosensors and epitaxial silicon filter elements at a surface of a substrate, said plurality comprising a first set and second set of photosensors, each of said first and second sets of photosensors having respective polysilicon filter elements;

the act of forming the photosensors and epitaxial silicon filters comprising:

forming a first patterned layer of epitaxial silicon, the first patterned layer including a respective part over each of said first set and said second set of photosensors; and

forming a second patterned layer of epitaxial silicon, the second patterned layer including a respective part over the part of the first patterned layer over each of said second set of said photosensors;

the part of the first patterned epitaxial silicon layer over each of the first set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the first wavelength;

the parts of the first and second patterned epitaxial silicon layers over each of the second set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a second wavelength longer than the first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the second wavelength.

56. (Withdrawn) A method of forming a sensing device that senses light in a wavelength range, comprising:

forming a photosensor at or beneath a surface of a substrate; and

forming a crystal silicon filter over said photosensor, the crystal silicon filter absorbing a majority of light at wavelengths shorter than a first wavelength and transmitting a majority of light at wavelengths longer than the first wavelength;

the photosensor receiving light transmitted by the crystal silicon filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and transmitting a majority of light received at wavelengths longer than the second wavelength.

57. (Withdrawn) A method of forming an array of sensing devices each of which senses light, comprising:

forming a plurality of photosensors and crystal silicon filter elements at a surface of a substrate, said plurality comprising a first set and second set of photosensors, each of said first and second sets of photosensors having respective crystal silicon filter elements;

the act of forming the photosensors and crystal silicon filters comprising:

forming a first patterned layer of epitaxial crystal silicon, the first patterned layer including a respective part over each of said first set and said second set of photosensors; and

forming a second patterned layer of epitaxial crystal silicon, the second patterned layer including a respective part over the part of the first patterned layer over each of said second set of said photosensors;

the part of the first patterned epitaxial crystal silicon layer over each of the first set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the first wavelength;

the parts of the first and second patterned epitaxial crystal silicon layers over each of the second set of photosensors being a filter that absorbs a majority of light at wavelengths shorter than a second wavelength longer than the first wavelength and transmits to the photosensor a majority of light at wavelengths longer than the second wavelength.

58. (New) The image pixel array of claim 11, wherein the second thickness is greater than the first thickness.

59. (New) The imager integrated circuit of claim 30, wherein the second thickness is greater than the first thickness.

60. (New) The imager integrated circuit of claim 31, wherein the second thickness is greater than the first thickness.

61. (New) An image pixel array in an imaging device, comprising:

a first photosensor at or beneath a surface of a substrate; and

a first filter comprising one or both of polysilicon or epitaxial silicon over the first photosensor and substrate, the polysilicon or epitaxial silicon of the first filter having a first thickness and absorbing a majority of light at wavelengths shorter than a first wavelength and passing a majority of light at wavelengths longer than the first wavelength;

the first photosensor receiving light passed by the first filter, absorbing a majority of light received at wavelengths shorter than a second wavelength and longer than the first wavelength, and passing a majority of light received at wavelengths longer than the second wavelength;

a second photosensor at or beneath the surface of the substrate and laterally adjacent to the first photosensor; and

a second filter comprising of one or both of polysilicon or epitaxial silicon over the second photosensor and substrate, the polysilicon or epitaxial silicon of the second filter having a second thickness and absorbing a majority of light at wavelengths shorter than the second wavelength and passing a majority of light at wavelengths longer than the second wavelength;

the second photosensor receiving light passed by the second filter, absorbing a majority of light received at wavelengths shorter than a third wavelength and longer than the second wavelength, and passing a majority of light received at wavelengths longer than the third wavelength.

62. (New) The image pixel array of claim 61, wherein the first and second photosensors are formed beneath an upper surface of the substrate.

64. (New) The image pixel array of claim 61, wherein the first filter is formed to attenuate only light having a wavelength of blue light.

65. (New) The image pixel array of claim 61, wherein the second filter is formed to attenuate light having a wavelength of blue light and light having a wavelength of green light.

66. (New) The image pixel array of claim 61, wherein tetraethyl orthosilicate is formed over the first filter.

67. (New) The image pixel array of claim 61, wherein an insulating material is formed over one or both of the first and second filters.

68. (New) The image pixel array of claim 61, wherein one or both of the first or second filters blocks non-normally incident light.

69. (New) The image pixel array of claim 61, further comprising:

a third photosensor at or beneath a surface of the substrate that receives incident light, the third photosensor absorbing a majority of incident light at wavelengths shorter than the first wavelength and passing a majority of incident light at wavelengths longer than the first wavelength.

70. (New) The sensing device of claim 69, wherein the first wavelength is approximately between blue and green visible light.